South Dakota GAME REPORT

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Annual Report

UPLAND BIRD AND WATERFOWL MANAGEMENT SURVEYS

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2003 Upland Bird and Waterfowl Management Surveys

Annual Report

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Pittman-Robertson Project ---------- W-95-R-37
Study No. 9501 ---------- Jobs I - II
Study No. 9502 ---------- Jobs I - V
Study No. 9503 ---------- Job I
Study No. 9504 ---------- Job I
Study No. 9506 ---------- Job I
Study No. 9510 ---------- Job I
Study No. 9521 ---------- Job I
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PREFACE

Data presented in this report were gathered during the 2003-2004 fiscal period under Pittman-Robertson Project W-95-R-37 for Study Number 9501, Pheasant Management Surveys, Study Number 9502, Grouse Management Surveys, Study Number 9503, Gray Partridge Management Surveys, Study Number 9504, Quail Management Surveys, Study Number 9506, Waterfowl Management Surveys, Study Number 9510, Banding and Band Recovery Analysis of Migratory Birds, and Study Number 9521, Game Bird Nesting Success Surveys.

Jobs included are:

Job 9501-I	Pheasant Brood Survey
Job 9501-II	Pheasant Winter Sex Ratio Survey
Job 9502-I	Sharp-tailed Grouse and Prairie Chicken Spring Lek Survey
Job 9502-II	Sharp-tailed Grouse and Prairie Chicken Harvest Field Survey
Job 9502-III	Sage Grouse Spring Survey and Lek Inventory
Job 9502-IV	Sage Grouse Hunter Harvest Survey
Job 9502-V	Ruffed Grouse Drumming Survey
Job 9503-I	Gray Partridge Harvest Survey
Job 9504-I	Quail Whistle Count Survey
Job 9506-I	Surveys of Migrating and Wintering Waterfowl
Job 9510-I	Banding Programs and Band Recovery Analysis
Job 9521-I	Upland Game Bird and Waterfowl Nesting Survey

Previous reports of this study include separate job reports prior to 1988-92. Harvest projections for the species corresponding to this report are available in Huxoll, C. M., 2003 Small Game, Upland Bird & Migratory Game Bird Harvest Projections, South Dakota Department of Game, Fish and Parks, Game Report No. 2004-02. Data from this report may be referenced with permission from authorized personnel of the South Dakota Department of Game, Fish and Parks. Copies of the report are available from the Department of Game, Fish and Parks, Foss Building, Pierre, South Dakota, 57501.

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STUDY OBJECTIVES

The objectives of this study were to obtain population and harvest data regarding upland and migratory game bird species in order to ensure their welfare while providing the maximum recreational opportunity for the public.

PHEASANT MANAGEMENT SURVEYS

JOB 9501-I PHEASANT BROOD SURVEY

Objectives: To annually determine pheasant reproductive success, population trend and relative densities throughout the pheasant range.

Narrative: The summer brood survey was accomplished by completing 110 survey routes statewide, each route 30 miles in length (Figure 1). These surveys were conducted according to the methods outlined in the wildlife survey manual. The surveys were conducted between July 25 and August 15, 2003. Brood size data indicates success of reproduction. This data is used to develop total state pheasant population. It is also used in developing harvest and management strategies.

Results and Analysis: On the 110 routes a total of 3,557 adult pheasants and 2,250 pheasant broods were observed (Table 1). The average brood size was determined to be 7.48 chicks per brood. A total of 20,387 pheasants were seen in 3,300 miles surveyed, resulting in 6.18 birds per mile.

Job leader: Will Morlock, Regional Wildlife Manager, Watertown, SD 605/882-5200.

JOB 9501-II PHEASANT WINTER SEX RATIO SURVEY

Objectives: To annually determine winter sex ratios of pheasant populations throughout the range.

Narrative: The sex ratio survey will indicate the degree of harvest attained the previous hunting season and comparing this ratio with the ideal ratio of 15 males to 100 females. The data is collected throughout the range from the close of the pheasant season through March 31, 2004. The data is collected according to the methods outlined in the wildlife survey manual. Any males, in excess of the ideal ratio, indicate under utilization of surplus birds.

***Results and Analysis*:** A total of 4,123 rooster pheasants and 10,285 hen pheasants were counted. The total of 14,408 birds exceeds the number required in the study outline. A ratio of 40.1 males to 100 females was the result of the survey. This exceeds the ideal of 15 males to 100 females, indicating an under-harvest of surplus male pheasants

Job leader: Will Morlock, Regional Wildlife Manager, Watertown, SD 605/882-5200.

GROUSE MANAGEMENT SURVEYS

JOB 9502-I SHARP-TAILED GROUSE AND PRAIRIE CHICKEN SPRING SURVEY

Objectives: To annually obtain an index of the abundance of breeding sharp-tailed grouse and prairie chickens throughout their range

Narrative: Department personnel and cooperators conducted surveys of 92 sharp-tailed grouse leks covering 701 square miles on 21 established survey areas and 45 prairie chicken leks covering 454 square miles on 12 established routes throughout the main prairie grouse range in South Dakota between 15 March and 30 May, 2003.

***Results and Analysis*:** Survey data of sharp-tailed grouse leks gathered in 2003 averaged 0.71 males per square mile, demonstrating an overall 28% decrease from 2002 (Figure 2, Tables 2 and 3). Only 10% of the sharp-tailed grouse lek routes showed increases (average 128% increase) in male grouse per square mile when compared to 2002, whereas 62% showed decreases (average 42% decrease). One lek showed no change in numbers, and data sets for 3 leks did not have 2002 data for comparison.

Greater prairie chicken lek surveys averaged 0.56 males per square mile, an overall 14% increase from 2002. (Figure 3, Tables 4 and 5) Forty-two percent of the prairie chicken lek routes showed increase (average 134% increase), 25% showed no change, and 33% of the routes showed a decrease (average 52% decrease) in males per square mile.

Extreme drought conditions existed throughout most of the prairie grouse range in South Dakota in the spring and summer of 2002. Grouse harvest during the 2002 fall season was the lowest on record since 1962, and age data gathered at harvest suggested very poor reproductive success in 2002. The preceding winter of 2002-2003 was mostly “open” with less snow coverage and milder temperatures than average.

Data and trends will continue to be collected and studied in following years to monitor and assess populations of prairie chickens and sharp-tailed grouse.

Job Leader: Andy Lindbloom, Regional Wildlife Manager, 605-223-7709.

JOB 9502-II SHARP-TAILED GROUSE AND PRAIRIE CHICKEN HARVEST FIELD SURVEY

Objectives: To annually determine sharp-tailed grouse and prairie chicken reproductive success, species composition of harvest, and distribution of harvest.

Narrative: The 2003 harvest field survey for sharp-tailed grouse and prairie chicken consisted of collecting grouse age and sex data from hunter-harvested birds. Data were collected primarily from Conservation Officer Bag checks throughout the hunting season, but other department personnel also gathered data from wings of harvested birds voluntarily submitted by hunters. In addition, the Fort Pierre National Grassland personnel, primarily by means of wing collection barrels, also collected and submitted data.

***Results and Analysis*:** Harvest data were collected from 433 wings throughout the 2003 survey period. Ft. Pierre National Grassland office submitted data from 117 sharp-tailed grouse wings and 214 prairie chicken wings (Table 6). Field checks and wings collected from other sources yielded an additional 69 sharp-tailed grouse wings and 33 prairie chicken wings for sexing and aging.

The young/adult ratio of all grouse data collected through Conservation Officer Bag Checks in 2003 was 0.80 young per 1 adult grouse, which is similar to last year's ratio of 0.82. The age ratio for sharp-tailed grouse was 0.74, slightly higher than the 0.54 ratio in 2002, whereas the ratio for prairie chicken actually decreased from 1.39 in 2002 to 0.94 in 2003.

The young/adult ratio of all grouse collected in 2003 by the Ft. Pierre National Grassland office was 2.15, considerably higher than the 0.61 ratio in 2002. From 2002 to 2003 sharp-tailed grouse age ratios increased from 0.83 to 2.44, and prairie chicken age ratios increased from 0.49 to 2.01.

Examining all data pooled, statewide age ratios for grouse increased from 0.70 in 2002 to 1.68 in 2003. The number of young/per adult harvested from 2002 to 2003 increased for both sharp-tailed grouse and prairie chicken from 0.65 to 1.53 and 0.75 to 1.80, respectively.

Small sample sizes for the bag checks this year makes interpretation difficult when analyzing these data separate. Overall, based on harvest data age ratios, grouse populations in the state appear to have experienced greater reproductive success in 2003 than in 2002. Although drought conditions did exist in western and central South Dakota in 2003 in mid to late summer, habitat conditions were definitely more optimal for grouse reproduction than in 2002 because of timely rains in the spring and early summer months. Increased vegetative cover was evident in most eastern and many central counties of the state, and increased reproduction was also seen in the state's pheasant population.

Analyses of harvest gender data from bag checks in 2003 resulted in a male/female harvest ratio for sharp-tailed grouse of 1.72, and a male/female harvest ratio of 0.93 for prairie chicken. In the 2002 survey, the male/female ratios for sharp-tailed grouse and prairie chickens were1.04 and 1.38 respectively.

Job Leader: Andy Lindbloom, Regional Wildlife Manager, 605-223-7709.

Job 9502-III Sage Grouse Spring Survey and Lek Inventory

Objectives: To annually determine the status of sage grouse populations in South Dakota by obtaining an index of breeding sage grouse on known and historical leks and conducting periodic aerial observations to detect previously unidentified leks.

Narrative: Department cooperators conducted surveys of 17 sage grouse leks in Butte, Harding and Fall River Counties during the months of April and May. Surveys were conducted under favorable weather conditions and good data were received. Nine of the 17 leks were found active in 2003 versus 13 active leks of 15 leks surveyed in 2002. The winter of 2002-2003 was mostly "open" with less snow coverage and milder temperatures than average.

***Results and Analysis*:** Survey data of sage grouse leks gathered in 2003 indicate that 17 leks were counted and 9 or 52.9% were found to be active with displaying males and females present. The data indicates a mean of 7.58 males per lek with a range of 0 to 38. The mean number of males/active lek was 14.3, which represents an increase of 22.3% from 2002 in that category. 2002 lek surveys showed a mean of 8.94 males/ lek and a mean number of 11.69 males/active lek within a range of 0 to 26. In 2003, five leks demonstrated increases in the number of attending males from 2002 and 6 showed decreases. Total males censused in 2003 was 129 versus 152 in 2002. No aerial surveys were conducted in 2003.

Job Leader: John Wrede, Regional Wildlife Manager, 605-394-2394.

Job 9502-IV Sage Grouse Hunter Harvest Survey

Objectives: To annually determine characteristics of fall sage rouse populations and hunter utilization.

Narrative: The 2003 Sage Grouse field harvest survey consisted of collecting Sage Grouse sex and age data from hunter-harvested birds and noting hunter biographical information. Conservation Officers and Technical Services personnel collected data during the two days of the hunting season in Butte and Harding Counties. Sage Grouse wings and tissue samples were collected from birds when allowed by the hunters.

***Results and Analysis*:** Approximately 36 hunters participated in the 2-day season and harvested 12 birds representing a 33% harvest success rate. The total number of participating hunters and success rate was nearly identical to the 2002 harvest data. Harvest distribution included 7 males (58.3%), 5 females (41.6%), 5 yearlings (41.6%) and 7 adults (58.3%) representing an adult to yearling ratio of .7/1. No juvenile birds were found in the harvest. Males represented the greatest percentage of adult birds in the harvest (85%) and females represented the greatest percentage of yearling birds in the harvest (80%) 8 birds were checked in Harding County and 4 birds were checked in Butte County. Mean length of the 9^{th} primary feather of yearling birds was 194 mm. Only one adult wing was collected and measured. The 8^{th} primary feather on the adult measured 221 mm.

In addition to characteristics of hunter harvest, 10 tissue samples from harvested birds (primarily visceral organs) were collected and sent to the University of Wyoming Veterinary Science Laboratory for testing for the presence of West Nile Virus. Results of the laboratory testing determined that the West Nile Virus was not present in the samples tested and no positive titer was found that would suggest the birds had been exposed to the virus.

Job Leader: John Wrede, Regional Wildlife Manager, 605-394-2394.

Job 9502-V Ruffed Grouse Spring Survey

Objectives: To annually obtain an index to the abundance of drumming ruffed grouse in the Black Hills.

Narrative: Department cooperators conducted surveys on 7 of the 9 established linear and/or stationary drumming count routes located primarily in the northern and central Black Hills in April and May of 2003. Seven surveys were conducted on the 6 routes. Counties involved in the survey included, Lawrence, Meade, Pennington, and Custer. Linear routes consisted of traveling a distance of approximately 10 miles along a pre-established route and performing 4 minute listening stops every one-half mile along the route. Stationary routes consisted of traveling approximately 10 miles along a pre-determined route and stopping at 10 pre-determined locations for 8 minutes to listen for drumming grouse. Department personnel ran two stationary routes and four linear routes from late April through mid-May. Surveys were conducted under favorable weather conditions and base line data were collected. During some surveys, visual observations of grouse were made along the routes but were recorded in the “Remarks” section of the survey rather than in the auditory data collected. Observers were asked to record the primary overstory cover types at each stop on the routes.

***Results and Analysis*:** Ruffed Grouse were detected on 4 of 7 survey routes in 2003. Survey data of ruffed grouse drumming count routes gathered indicate a mean of .07 grouse per listening stop for all stops made on the routes and .11 grouse per listening stop on routes where grouse were detected. A total of 67.7 miles were traveled during the survey. A total of 11 male ruffed grouse were detected and recorded during the survey yielding an index of .16 grouse per lineal mile for all routes and .28 grouse per lineal mile for routes where grouse were found to be present. No grouse were detected on the two stationary routes conducted. As expected, drumming grouse were detected in diverse canopy cover consisting primarily of pine/aspen, pine/spruce/aspen, or spruce/pine/birch.

Job Leader: John Wrede, Regional Wildlife Manager, 605-394-2394.

PARTRIDGE MANAGEMENT SURVEYS

JOB 9503-I GRAY PARTRIDGE HARVEST SURVEY

Objective: To annually determine gray partridge reproductive success and distribution of harvest.

Narrative: The 2003 harvest field survey for gray partridge consisted of collecting partridge sex and age data from hunter-harvested birds. Data were to be collected primarily from Conservation Officer Bag checks throughout the hunting season, but other department personnel also have traditionally gathered data from wings of harvested birds voluntarily submitted by hunters.

Results and Analysis: No partridge harvest data were submitted for analyses in 2003. Lack of adequate sample sizes has plagued this survey for many years, and the presumably low population levels of partridge present in the state currently exacerbate this problem. The department should continue to search for other effective and feasible means of gathering partridge population trend data.

Job Leader: Andy Lindbloom, Regional Wildlife Manager, 605-223-7709.

QUAIL MANAGEMENT SURVEYS

JOB 9504-I QUAIL WHISTLE COUNT SURVEY

Objective: To annually determine population status of whistling male bobwhite quail throughout the main quail range.

Narrative: The Whistle Count Survey was conducted in 8 counties in southeastern and south central South Dakota. A total of 13 established routes are surveyed by Conservation Officers between June 20 and July 15. This survey is the primary indicator for annual breeding populations of quail in the state.

Results and Analysis: The 2003 Whistle Count Survey showed a 53% decrease in males from the 2002 survey (Table 7). A total of 7 quail were recorded in 2003, compared to 15 in 2002. This represents a significant decrease over last year, and is well below the long-term average of 36 quail (Figure 4, Table 8). This is also the lowest number of whistling males recorded since the survey started in 1963. The exact cause of the decline is unknown.

Job Leader: Ron Schauer, Regional Wildlife Manager, (605) 362-2700.

WATERFOWL MANAGEMENT SURVEYS

JOB 9506-I SURVEYS OF MIGRATING AND WINTERING WATERFOWL

Objectives: To annually measure waterfowl use of the Missouri River and vicinity during the fall migration and to determine the temporal and geographic distribution of waterfowl on Missouri River impoundments, and conduct a statewide Winter Waterfowl Survey during early January in cooperation with the U.S. Fish and Wildlife Service.

Narrative: Seven aerial surveys with varying coverage of the Missouri River from the ND-SD state line to Sioux City, Iowa, were accomplished from November 5 – December 16, 2003. In addition, the river system from the ND-SD state line to Sioux City, Iowa was surveyed the first week in January during the January winter waterfowl survey. No photographic flights were accomplished this year. These surveys are the most efficient way to determine waterfowl use of the Missouri River system during the fall and winter. The data are used to provide information to the public on concentrations of waterfowl and to develop harvest and management strategies.

Results and Analysis: The peak population for geese during the 7 aerial surveys was the flight of November 11 when 636,438 Canada geese were counted. The peak population for ducks occurred on the same flight when 723,233 ducks, primarily mallards, were counted. This is a very high count for mallards and Canada geese. The mid-December all-goose survey has been discontinued by the Central Flyway and is not conducted any more. The January winter waterfowl survey along the Missouri River revealed 287,617 Canada geese and only 9,315 ducks, primarily mallards. The January survey had a high number of Canada geese this year due to the mild weather.

Job Leader: Spencer Vaa, Senior Wildlife Biologist, 605-688-4786

BANDING AND BAND RECOVERY ANALYSIS OF MIGRATORY BIRDS

JOB 9510-I BANDING PROGRAMS AND BAND RECOVERY ANALYSIS

Objectives: To annually band migratory birds common to South Dakota and to determine migratory bird species movement, harvest patterns, survival and mortality rates and other pertinent information from band recoveries.

Narrative: Giant Canada geese were banded in Clark, Codington, Brookings, Kingsbury, Day, and Hamlin counties. Also, pre-season duck banding was conducted in McPherson County as part of a Central Flyway banding project.

Results and Analysis: One thousand twenty-five (1,025) giant Canada geese were banded in South Dakota in 2003. Fifty-two (52) of those birds were fitted with radio collars to track movement (23VHF, 29SAT). Banded geese included Day-99, Kingsbury-210, Brookings-140, Codington-242, Clark-144, and Hamlin-190.

In addition, SD GF&P personnel took part in a pre-season duck-banding project in McPherson County. The Department provided $1,500 to the Central Flyway for the project this year plus hundreds of man-hours of assistance. Rocket nets were used to band 2,452 ducks during August and September (Table 9). This total included 1,276 pintails and 1,183 mallards.

Job Leader: Paul Mammenga, Assistant Waterfowl Biologist, 605-626-2391

GAME BIRD NESTING SUCCESS SURVEYS

JOB 9521-I UPLAND GAME BIRD AND WATERFOWL NESTING SURVEY

Objectives: To annually determine nesting success for various upland game birds and waterfowl, and to evaluate effects of land-use, predators and weather conditions on nesting success.

Narrative: Various types of waterfowl nest structures were monitored in 10 counties in eastern South Dakota to determine occupancy rate and nest success. Waterfowl nest success was monitored on 4 areas where a trapper removed predators during the time period of April 1 – July 1. Due to extremely high water, the electric fences at Bitter Lake in Day County and Twin Lakes in Spink County have been destroyed and one is no longer in operation. Also, the exclosure fence at Scatterwood Lake in Faulk County has been abandoned, as we were unable to keep predators, including raptors, from the enclosed area.

Results and Analysis: Twenty-three (23) culverts located in Brookings, and Brown counties contained 15 mallard nests and 18 Canada goose nests. Nest success on mallards was 87% and for Canada geese it was 89%. Most of the unsuccessful nests were due to abandonment from high water levels or human disturbance.

One hundred seventy (170) mallard baskets with fiberglass cover-tops located in Brookings, Brown, Kingsbury, Marshall, Hamlin, Codington, Edmunds, Spink, and McPherson counties had 85 mallard nests and success was 86%. Dry conditions influenced nesting activity this year.

In addition, 169 mallard cylinders, commonly known as hen houses, were monitored in Hamlin, Brookings, Deuel, McPherson, and Codington County. These contained 99 mallard nests and 2 wood duck nests and 95% were successful. It appears that our nest structure program is working well in South Dakota and the effort to equip all open mallard baskets with cover-tops is complete. We are also consolidating structures on fewer areas to facilitate monitoring and maintenance efforts. In addition, owl guards on top of the structure and an inverted cone on the pole are being installed to divert predators.

The four GPA's where DU projects have been completed (peninsula cut-offs, islands, electric fences, etc.) along with predator control work during the nesting season in 2003 had varying results. Predators were effectively kept from the nests on Johnson Slough in Hamlin County. We were unable to exclude predators from duck nests on the Hogsback and Lake Albert Island and from Horseshoe Lake. The electric barrier fence was replaced in 2000 on Horseshoe Lake. The predator exclosure fence on Scatterwood was discontinued in 1999 and the Thompson GPA electric fence was discontinued in 2000.

Predators are proving to be very difficult to control on these three areas.

Job Leader: Spencer Vaa, Senior Wildlife Biologist, 605-688-4786

STUDY SUMMARIES

INTRODUCTION

Increasing recruitment rates of prairie nesting ducks is essential to the success of the North American Waterfowl Management Plan. The goal of the Plan is to attain a fall flight of 100 million ducks under average environmental conditions. The size of the 2003 mid-continent mallard breeding population, which is comprised of mallards from the traditional survey area and the states of Minnesota, Wisconsin, and Michigan increased slightly from 2002 (8.5 million to 8.8 million). Breeding population estimates for mallard, green-winged teal, blue-winged teal, gadwall, and shoveler remained above their respective

long-term averages (LTA) while scaup and pintail remained well below their LTA. Canvasback, redhead and wigeon were similar to their LTA. Total May ponds (in the U.S. prairies and prairie and parkland Canada combined) at 5.2 million were 94% higher than last year and 7% above the LTA. The mid-continent mallard fall-flight index for 2003 was estimated at 10.3 million birds compared to 8.9 million in 2002. The total duck fall-flight index is no longer computed by the FWS. To attain the fall flight goal, land management practices favorable to nesting ducks must be implemented on both public and private land. This report deals with results of field work conducted in eastern South Dakota during 2003. Studies centered on duck nest success on areas where predators were controlled and the use of various types of nest structures by ducks and Canada geese. In addition, a summary of the 2003 pre-season duck banding program is included. Studies were funded by the Department of Game, Fish and Parks under federal codes 9521 and 9510. Data were collected by Wildlife Division personnel from both Technical Services and Operations.

STUDY AREA

Samples of nests (generally a minimum of 10-20) were located at a number of sites where intensive management to increase duck production is carried out. On some of these sites a trapper attempted to keep the area predator free by conducting predator removal during April 1 to July 1. In 2003, sites worked on included the following: peninsula cut-off at Johnson Slough in Hamlin County, Hogsback electric fence and Lake Albert island in Kingsbury County, and Horseshoe electric fence in Codington County.

Useable culverts, cylinders, and mallard nest baskets with overhead cover were located in the following counties for 2003: Brookings, Brown, Codington, Deuel, Edmunds, Hamlin, Kingsbury, Marshall, McPherson, and Spink. These were monitored for occupancy and nest success.

The pre-season duck-banding program, in cooperation with the FWS and Central Flyway, took place on various sites in McPherson County during August and September, although baiting and site preparation started in July.

METHODS

Areas where samples of nests were located to assess management efforts/predator control work were searched on foot by 1-2 people using willow sticks. Initial searches took place in May and were subsequently rechecked for nest success in June and July.

All nests were revisited at least once to determine fate. A nest was considered successful if at least one egg hatched. Nests with no sign of eggs, shells or membranes or with scattered or eaten shells were classified as destroyed. Nests containing whole eggs that had ceased development were recorded as abandoned.

Apparent nest success was calculated by dividing the number of successful nests by the number of nests for which a fate was determined.

Predator control during April 1 to July 1 was accomplished by a trapper using box traps, foothold traps, snares, and firearms. Areas trapped in 2003 included Johnson Slough, Hogsback, Lake Albert island, and Horseshoe Lake.

Paul Mammenga, Mark Grovijahn and Spencer Vaa checked culverts and mallard baskets containing overhead cover with the use of an Argo machine, by boat and chest waders.

RESULTS

DU Projects With Predator Control

Samples of nests (minimum of 10-20) were located on 4 areas to assess waterfowl production. These areas included the Hogsback, Johnson Slough, Lake Albert Island and Horseshoe Lake. Nest samples were obtained during early to late May and were rechecked in June. It should be noted that a systematic search to find all nests on these sites was not the goal; rather, a sample of nests were located to assess waterfowl production on sites where a trapper attempted to remove all predators from the site.

The Johnson slough peninsula cutoff in Hamlin County had fair production in 2003. A sample of 33 nests, all mallards, were located on May 21 and on into June. Fifteen of the nests were successful, 4 abandoned, and 14 appeared to be predated. High water in recent years has reduced the area available to nesting hens. This site is important to nesting giant Canada geese as evidenced by the large number of goose nests (over 30) present this year. Three raccoon, 4 mink, 6 skunks, and 1 woodchuck were removed from the area.

On the Hogsback of Lake Albert, six nests were located on May 20. There was very little duck nesting activity on the Hogsback this year, most likely due to high predator activity. All the nests were mallards except for 1 blue-winged teal and none were successful. The electric fence on this site was replaced during the fall of 1997 and became operational for the 1998 season. Five raccoon, 2 skunks, 1 mink, 2 woodchuck, 7 gophers and 1 weasel were removed (Table 10). This area usually has a high density of mallards nesting on it each season, but this year due to heavy predation there were markedly fewer nesters. Receding water levels made it easy for the predators to swim around the wing panels. Many days were spent attempting to keep predators from the area behind the electric fence, but failed.

On the Lake Albert Island in Kingsbury County (20 acres), nine mallard nests were located on May 21. Three were successful, 5 predated, and 1 abandoned. One raccoon was removed. Few ducks nested on this island in 2003, but there were many (over 30) successful Canada goose nests.

On Horseshoe Lake in Codington County, seven duck nests were located in May. Three were successful and 4 predated. This area is inundated by high water. Five mink, 14 raccoon, 9 13-line ground squirrels, 12 skunks, 3 woodchucks, and 1 weasel were removed.

Many predators traveled around the wings and entered the nesting area, making it pretty much a bust for ducks. There were over 50 Canada goose nests on Horseshoe Lake and most were successful.

Use of Culverts by Ducks and Canada Geese

A fair year for duck/Canada goose production occurred on culverts in 2003 (Table 11). Twenty-three culverts with fiberglass partitions in Brown and Brookings counties resulted in 15 mallard and 18 Canada goose nests. Apparent nest success was 87% for ducks and 89% for Canada geese. High water levels/ice damage has caused problems to many nest structures, especially in the Bitter Lake and Redetzke GPA area in Day County. We are also having some problems with horned owls and are installing owl guards.

Use of Baskets with Cover Tops by Ducks

One hundred seventy (170) mallard baskets with fiberglass cover-tops in 9 counties resulted in 85 nests and 86% success (Table 12). Putting a cover-top on a regular mallard basket is a great way to increase the occupancy rate and all of our mallard baskets now have fiberglass cover tops installed. We are consolidating our nest structures on fewer wetlands to facilitate monitoring and maintenance. Dry conditions in 2003 influenced nesting activity on some structures.

Mallard Cylinders

One hundred sixty-nine (169) cylinders in 5 counties resulted in 101 nests with 95% success (Table 13). All were mallard nests except for 2 wood duck nests. Mallards seek the overhead cover provided by the cylinders and they are among the best type of structures available.

CONCLUSIONS

The predator control work carried out at the DU project sites on Horseshoe Lake, Johnson Slough, the Hogsback and Lake Albert island resulted in poor duck and fair Canada goose production in 2003. It is proving to be very difficult to control predators on the Hogsback, Horseshoe Lake, and Johnson Slough. On the Lake Albert Island, if predators are present early in the nesting season, they are tough to control. Mallard cylinders and baskets with cover tops were productive nest structures again this year. However, horned owls are becoming a problem, especially at Oakwood Lakes. Owl guards are being installed.

The bottom line is we can make a difference in the population of local mallards by using various types of structures. The emphasis will continue to focus on mallards.

The best uses of this data are:

1) To provide information about waterfowl production on Department lands to GF&P personnel.

2) Encourage WCO's and others to submit proposals for waterfowl habitat projects.

3) Evaluate effectiveness of DU projects.

4) Evaluate effectiveness of trapping on specific sites.

5) Evaluate effectiveness of nest structures.

APPENDIX

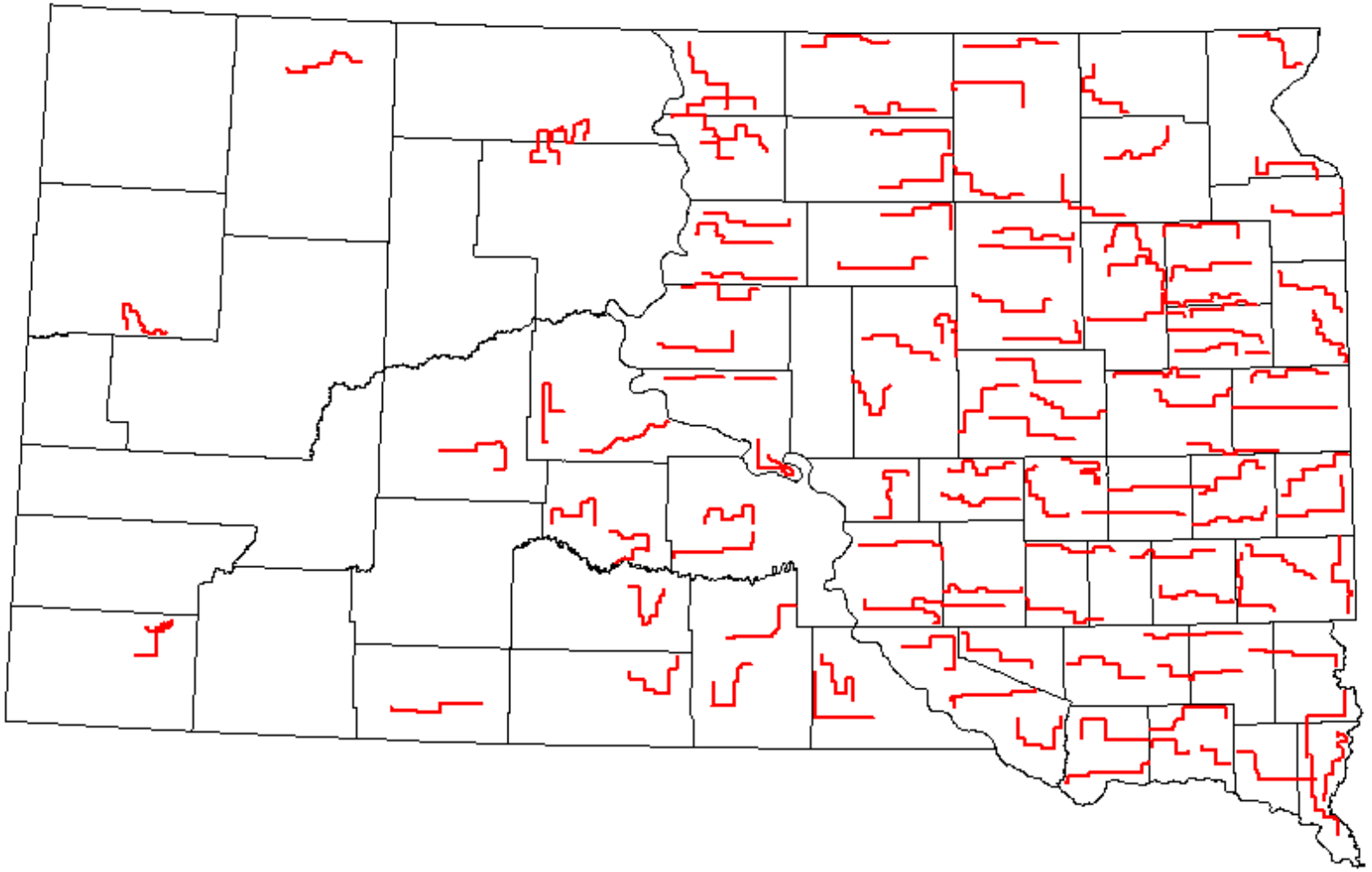

Figure 1. 2003 pheasant brood survey routes.

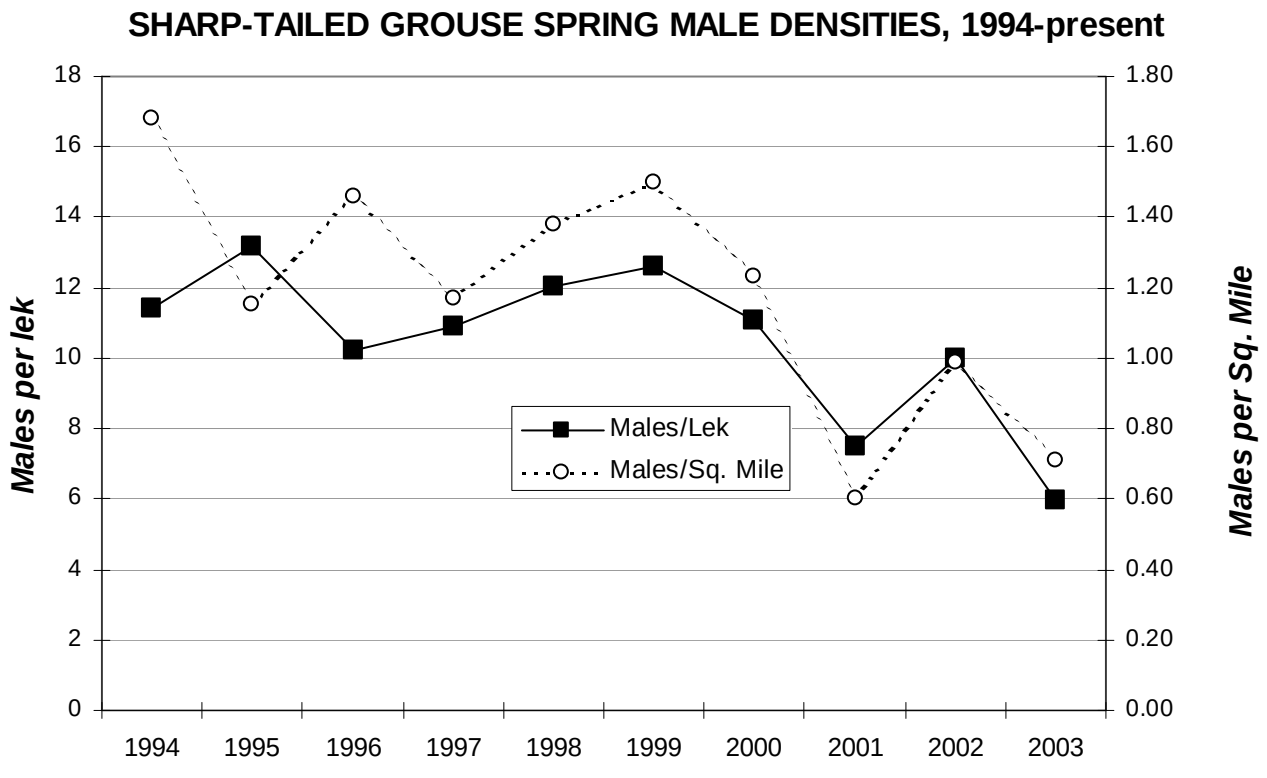

Figure 2. Sharp-tailed grouse spring male density summaries, 1994-present.

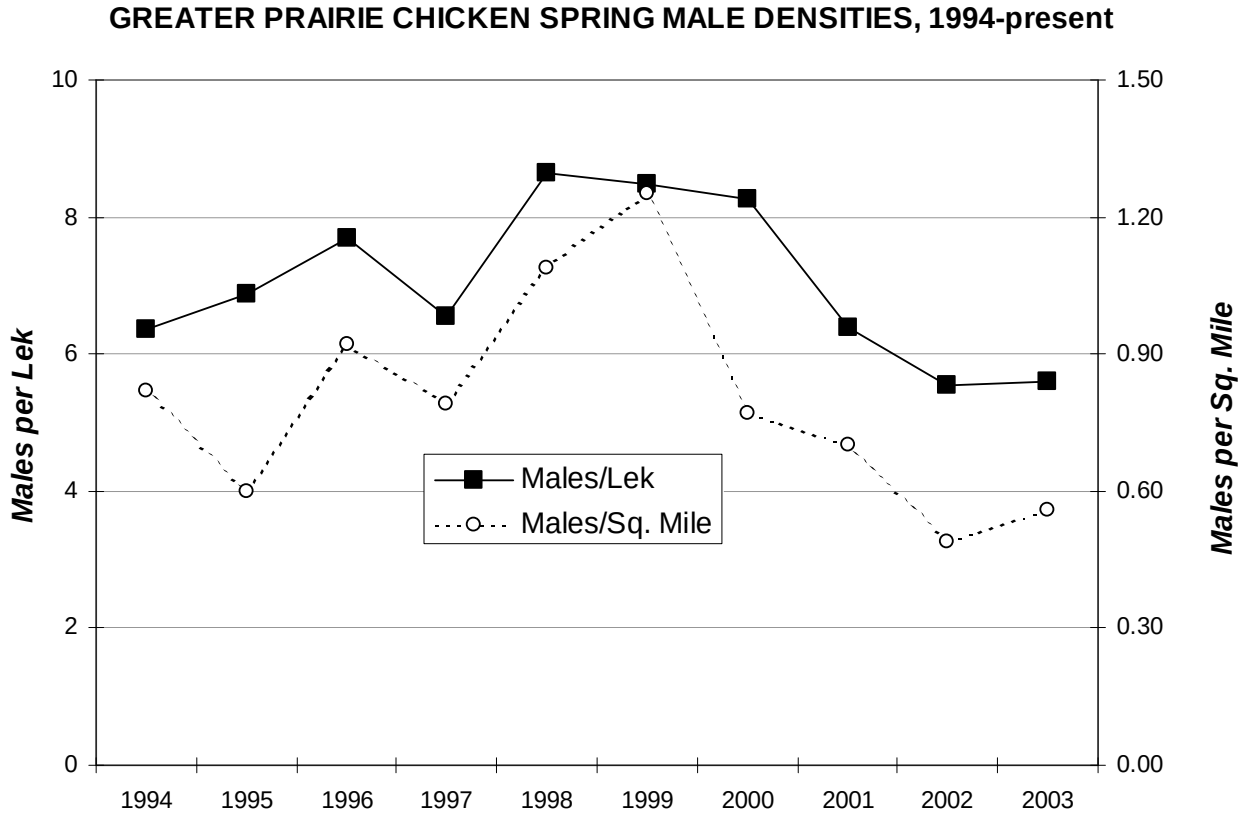

Figure 3. Greater prairie chicken spring male density summaries, 1994-present.

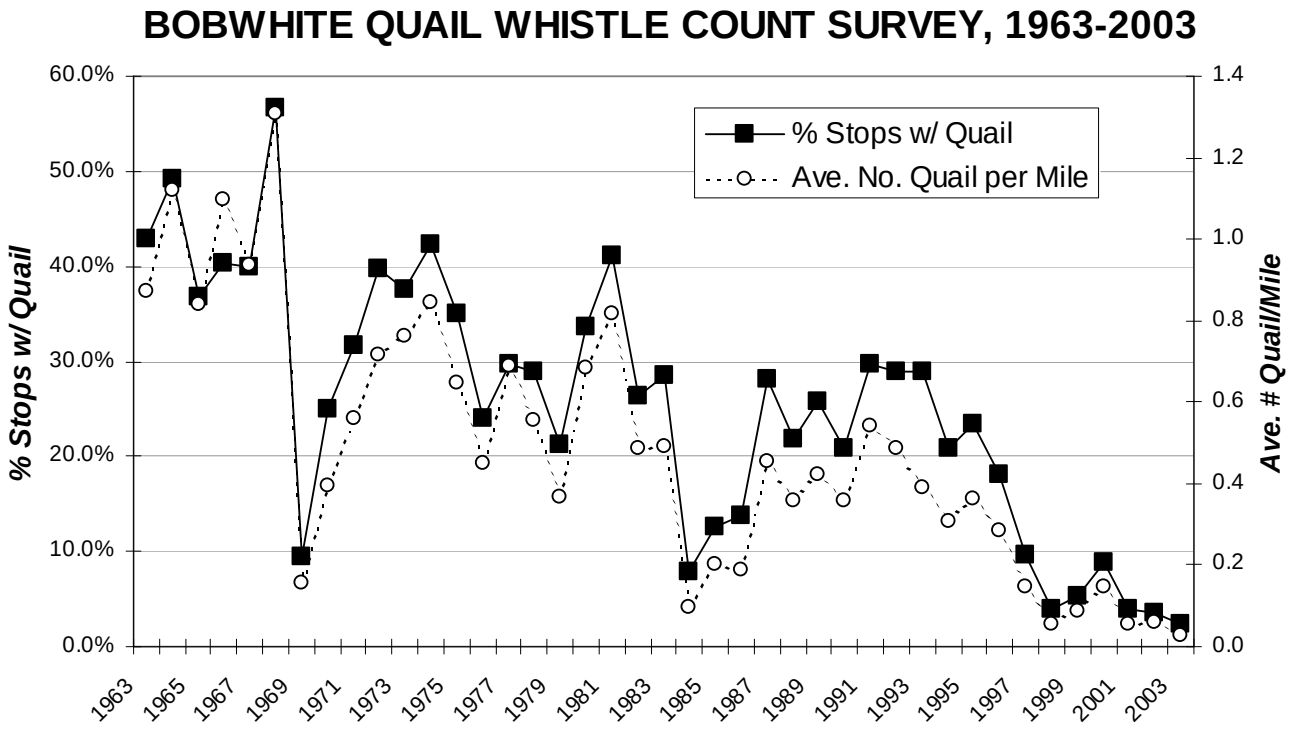

Figure 4. Northern bobwhite whistle count survey, 1963-present.

Table 1. 2003 pheasant brood survey route results.

2003
Pheasant Brood Survey Summary Sheet
Regions 1 & 2

Route	Date Run	Data Type	Miles	Cocks	Hens	Total Adults	Hens w/young No.	Hens w/young %	Adults per mile	Broods per Mile	Broods/Mile (2002)	Percent change
Bennett N	15-Aug	p	30	9	13	22	13	100%	0.73	0.43	0.53	-19%
Bennett S	30-Jul	p	30	27	149	176	141	95%	5.87	4.70	0.63	642%
Brule N	31-Jul	p	30	21	105	126	97	92%	4.20	3.23	1.73	87%
Brule S	26-Jul	p	30	15	15	30	11	73%	1.00	0.37	1.93	-81%
Buffalo	15-Aug	s	30	2	1	3	1	100%	0.10	0.03	0.27	-88%
Campbell N	6-Aug	p	30	10	29	39	24	83%	1.30	0.80	0.40	100%
Campbell S	5-Aug	p	30	13	10	23	9	90%	0.77	0.30	0.20	50%
Charles Mix Mid	5-Aug	p	30	15	18	33	14	78%	1.10	0.47	0.10	367%
Charles Mix N	13-Aug	p	30	2	17	19	17	100%	0.63	0.57	0.20	183%
Charles Mix S	7-Aug	p	30	1	11	12	11	100%	0.40	0.37	0.07	450%
Corson	5-Aug	p	30	2	2	4	2	100%	0.13	0.07	0.10	-33%
Dewey-Corson	6-Aug	p	30	4	7	11	3	43%	0.37	0.10	0.17	-40%
Douglas	2-Aug	p	30	12	37	49	29	78%	1.63	0.97	0.33	190%
Fall River	15-Aug	s	30	3	13	16	13	100%	0.53	0.43	0.63	-32%
Gregory N	11-Aug	p	30	11	59	70	57	97%	2.33	1.90	0.63	200%
Gregory S	5-Aug	p	30	9	26	35	18	69%	1.17	0.60	1.10	-45%
Haakon	*8-Aug*	s	29	1	3	4	**2**	67%	0.14	0.07		
Hand Hyde S	13-Aug	s	30	3	11	14	9	82%	0.47	0.30	0.33	-10%
Hand Mid	2-Aug	p	30	36	43	79	27	63%	2.63	0.90	0.80	13%
Hand N	1-Aug	p	30	15	40	55	31	78%	1.83	1.03	0.53	94%
Hughes N	5-Aug	p	30	8	12	20	6	50%	0.67	0.20	0.03	500%
Hughes S	6-Aug	p	30	12	11	23	5	45%	0.77	0.17	0.07	150%
Jones N	11-Aug	p	30	2	7	9	6	86%	0.30	0.20	0.17	20%
Jones S	7-Aug	p	30	2	3	5	3	100%	0.17	0.10	0.07	50%
Lyman N	30-Jul	p	30	14	82	96	82	100%	3.20	2.73	1.33	105%
Lyman S	31-Jul	p	30	17	63	80	63	100%	2.67	2.10	1.67	26%
Mellette	5-Aug	p	31	1	7	8	7	100%	0.26	0.23	0.10	126%
Perkins (new)	5-Aug	s	32	3	5	8	5	100%	0.25	0.16		
Potter Mid	11-Aug	p	30	9	48	57	45	94%	1.90	1.50	0.33	350%
Potter N	6-Aug	p	30	10	28	38	26	93%	1.27	0.87	0.13	550%
Potter S	5-Aug	p	30	9	27	36	22	81%	1.20	0.73	0.13	450%
Stanley	1-Aug	p	30	1	1	2	1	100%	0.07	0.03	0.03	0%
Stanley W (new)	10-Aug	p	30	2	11	13	11	100%	0.43	0.37		
Sully N	1-Aug	p	30	5	22	27	18	82%	0.90	0.60	0.30	100%
Sully S	29-Jul	p	30	3	8	11	5	63%	0.37	0.17	0.10	67%
Todd	11-Aug	p	30	1	4	5	4	100%	0.17	0.13	0.07	100%
Tripp N	12-Aug	p	30	8	47	55	35	74%	1.83	1.17	1.00	17%
Tripp S	11-Aug	p	30	6	16	22	11	69%	0.73	0.37	0.07	450%
Walworth E	6-Aug	p	30	5	6	11	4	67%	0.37	0.13	0.10	33%
Walworth W	7-Aug	s	30	6	11	17	7	64%	0.57	0.23	0.37	-36%
			1,202	335	1,028	1,363	895	87%	1.13	0.74	0.45	64%

prepared by: Andy Lindbloom

Average Brood Size/Hen 2002: **5.6**
Average Brood Size/Hen: **7.2**
Number of chicks: **6,444**
Number of pheasants: **7,807**
Birds per mile 2002: **3.4**
Birds per mile: **6.50**

Table 1. 2003 pheasant brood survey route results (cont'd).

Region 3

Route	Date Run	Data Type	Miles	Cocks	Hens	Total Adults	Hens w/young No.	Hens w/young %	Adults per mile	Broods per Mile	Broods/Mile (2002)	Percent change
Aurora-Brule (1)	31-Jul	P	30	20	52	72	44	85	2.4	1.47	1.07	38%
Aurora (M)	30-Jul	P	30	12	99	111	88	89	3.7	2.9	2.17	34%
Beadle (N)	11-Aug	P	30	7	14	21	10	71	0.7	0.33	0.27	24%
Beadle (S)	0 Aug	P	30	20	36	56	27	75	1.87	0.9	0.93	-4%
Beadle (E) New	7-Aug	P	30	6	28	34	25	89	1.13	0.83	0.33	149%
Beadle (W) New	5-Aug	P	30	16	54	70	46	85	2.33	1.53	0.47	228%
Bon Homme (N)	12-Aug	P	30	4	3	7	3	100	0.23	0.1	0.00	
Bon Homme (S)	15-Aug	S	30	2	1	3	1	100	0.1	0.03	0.00	
Brookings (N)	30-Jul	P	30	9	38	47	35	92	1.6	1.2	0.47	157%
Brookings (M)	12-Aug	P	30	12	22	34	22	100	1.13	0.73	0.33	119%
Brookings (S) New	29-Jul	S	30	10	23	33	20	87	1.1	0.67	0.20	235%
Clay-Union	15-Aug	S	30	2	4	6	3	75	0.2	0.1	0.16	-38%
Davison-Hanson (N)	6-Aug	P/S	30	10	25	35	24	96	1.16	0.8	0.27	200%
Davison (S)	12-Aug	P/S	30	7	8	15	7	87	0.5	0.23	0.33	-31%
Hutchinson-Turner (N)	9-Aug	P	30	0	1	1	1	100	0.03	0.03	0.07	-55%
Hutchinson-Turner (S)	31-Jul	P	30	10	14	24	13	93	0.8	0.43	0.03	1190%
Hutchinson (W)	5-Aug	P	30	7	2	9	2	100	0.3	0.06	0.13	-55%
Jerauld (M)	5-Aug	P	30	20	38	58	29	76	1.93	0.96	0.13	620%
Jerauld (N) New	7-Aug	P	30	10	31	41	27	87	1.37	0.9	0.33	170%
Kingsbury (N)	31-Jul	P	30	6	13	19	8	61	0.63	0.27	0.13	103%
Kingsbury (S)	1-Aug	P	30	3	11	14	8	73	0.47	0.27	0.07	305%
Lake (N)	3-Aug	P	30	7	20	27	17	85	0.9	0.57	0.20	185%
Lake (S)	13-Aug	P	30	5	5	10	4	80	0.33	0.13	0.03	290%
Lincoln-Turner	8-Aug	P	30	0	4	4	4	100	0.13	0.13	0.10	30%
Lincoln-Union New	9-Aug	P	30	2	3	5	3	100	0.17	0.1	0.10	0%
McCook (N)	6-Aug	P	30	2	7	9	7	100	0.3	0.23	0.11	107%
McCook (S)	7-Aug	P	30	2	5	7	5	100	0.23	0.17	0.03	410%
Miner (N)	12-Aug	P	30	9	44	53	43	98	1.77	1.43	0.53	168%
Miner (S)	30-Jul	P	30	18	92	110	84	91	3.67	2.8	0.60	367%
Minnehaha (N)	13-Aug	P	30	4	16	20	13	81	0.67	0.43	0.20	115%
Minnehaha (W)	1-Aig	P	30	6	22	28	19	86	0.93	0.63	0.10	530%
Minnehaha (E) New	12-Aug	P	30	3	13	16	11	85	0.53	0.37	0.20	85%
Moody (N)	2-Aug	P	30	13	19	32	19	100	1.07	0.63	0.23	170%
Moody (S)	12-Aug	P	30	5	13	18	13	100	0.6	0.43	0.10	330%
Sanborn Study (N)	6-Aug	P	30	23	29	52	18	62	1.73	0.6	0.63	-5%
Sanborn (M)	31-Jul	P	30	21	67	88	52	78	2.93	1.73	0.83	108%
Union (N) New	7-Aug	P	30	3	9	12	8	89	0.4	0.27	0.13	103%
Union (S)	11-Aug	P	30	2	2	4	2	100	0.13	0.06	0.00	
Yankton (N) New	8-Aug	P	30	3	12	15	12	100	0.5	0.4		
Yankton (S)	12-Aug	P/S	30	1	5	6	5	100	0.2	0.17	0.13	31%
TOTALS		P = 37 S = 3	1,200	322	904	1226	782		1.02	0.65	0.31	110%

prepared by: Ron Schauer

Average Brood Size/Hen 2002: 6.4

Average Brood Size/Hen: 7.5

Number of chicks: 5,865

Number of pheasants: 7,091

Birds per mile 2002: 2.46

Birds per mile: 5.91

Table 1. 2003 pheasant brood survey route results (cont'd).

Region 4

Route	Date Run	Data Type	Miles	Cocks	Hens	Total Adults	Hens w/young No.	Hens w/young %	Adults per mile	Broods per Mile	Broods/Mile (2002)	Percent change
Brown N	2-Aug	P	30	19	23	42	20	87%	1.40	0.67	0.37	82%
Brown Mid	31-Jul	S/P	30	14	14	28	10	71%	0.93	0.33	0.23	43%
Brown S	8-Aug	P	30	16	45	61	37	82%	2.03	1.23	0.20	517%
Codington N	1-Aug	P	30	5	15	20	13	87%	0.67	0.43	0.37	18%
Codington Mid	8-Aug	S	30	11	18	29	17	94%	0.97	0.57	0.10	467%
Codington S	31-Jul	P	30	13	24	37	21	88%	1.23	0.70	0.33	110%
Clark N	2-Aug	S	30	5	4	9	4	100%	0.30	0.13	0.10	33%
Clark Mid	31-Jul	P	30	10	16	26	15	94%	0.87	0.50	0.03	1415%
Clark S	7-Aug	P	30	15	33	48	31	94%	1.60	1.03	0.43	139%
Day N	4-Aug	P	30	6	5	11	5	100%	0.37	0.17	0.03	405%
Day Mid												
Day S	7-Aug	P	30	11	45	56	44	98%	1.87	1.47	0.43	239%
Deuel N	4-Aug	P	30	1	4	5	3	75%	0.17	0.10	0.07	49%
Deuel S	31-Jul	P	30	12	11	23	11	100%	0.77	0.37	0.13	176%
Edmunds N	10-Aug	P	30	30	80	110	70	88%	3.67	2.33	0.43	439%
Edmunds S	11-Aug	P	30	25	82	107	77	94%	3.57	2.57	0.53	382%
Faulk N	31-Jul	P	30	11	20	31	14	70%	1.03	0.47	0.13	251%
Faulk S	2-Aug	P	30	7	7	14	7	100%	0.47	0.23	0.07	248%
Grant Mid	4-Aug	P	30	4	2	6	2	100%	0.20	0.07	0.07	0%
Hamlin/Codington N	11-Aug	P	30	12	26	38	25	96%	1.27	0.83	0.30	178%
Hamlin M	30-Jul	P	30	11	19	30	16	84%	1.00	0.53	0.30	78%
Hamlin S	13-Aug	P	30	2	15	17	15	100%	0.57	0.50	0.47	7%
McPherson S	1-Aug	P	30	8	6	14	4	67%	0.47	0.13	0.03	304%
Marshall S	7-Jul		30	11	10	21	7	70%	0.70	0.23	0.17	40%
Roberts N	8-Aug	P	30	2	4	6	4	100%	0.20	0.13	0.07	99%
Roberts Mid												
Roberts S	12-Aug	P	30	2	5	7	4	80%	0.23	0.13	0.03	304%
Spink N	1-Aug	P	30	17	26	43	19	73%	1.43	0.63	0.10	533%
Spink Mid	1-Aug	P	30	11	34	45	33	97%	1.50	1.10	0.37	200%
Spink S	7-Aug	P	30	13	20	33	19	95%	1.10	0.63	0.13	376%
McPherson N	30-Jul	P	30	15	13	28	9	69%	1.00	0.30	0.17	80%
Spink XX	5-Aug	P	30	5	14	19	13	93%	0.63	0.43	0.47	-7%
Totals			900	324	640	964	569	88.91%	1.07	0.63	0.22	185%

Average Brood Size/Hen 2002: **7.33**

Average Brood Size/Hen: **7.94**

Number of chicks: **4,518**

prepared by: Will Morlock

Number of pheasants: **5,482**

Birds per mile 2002: **2.06**

Birds per mile: **6.09**

Statewide	Date Run	Data Type	Miles	Cocks	Hens	Total Adults	Hens w/young No.	Hens w/young %	Adults per mile	Broods per Mile	Broods/Mile (2002)
Totals			**3,302**	**981**	**2,572**	**3,553**	**2,246**	**87%**	**1.08**	**0.68**	**0.58**

Average Brood Size/Hen 2002: **6.25**

Average Brood Size/Hen: **7.55**

Number of chicks: **16,957**

Number of pheasants: **20,510**

Birds per mile 2002: **2.69**

Birds per mile: **6.21**

Table 2. Sharp-tailed grouse spring breeding population density.

2003 SHARP-TAILED GROUSE SPRING BREEDING POPULATION DENSITY

County/Route	Square Miles	Grounds Counted	Males Counted	Ave. # Males per Ground	Grounds per Sq. Mile	Males per Sq. Mile	% Change from 2001
Beadle	40	1	8	8.0	0.03	0.20	-33%
Bennett	40	11	50	4.5	0.28	1.25	-49%
Buffalo	40	1	10	10.0	0.03	0.25	
Butte	countywide	1	4	4.0	n/a	n/a	
Campbell	-	-	-	-	-	-	
Charles Mix (secti	36	1	6	6.0	0.03	0.17	-87%
Corson	40	5	32	6.4	0.13	0.80	
Corson-Dewey	26	6	26	4.3	0.23	1.00	
Dewey	-	-	-	-	-	-	
Fall River	countywide	-	-	-	-	-	
Ft.Pierre Grslnd	40	8	13	1.6	0.20	0.33	225%
Gregory (sections	24	10	85	8.5	0.42	3.54	-29%
Haakon	-	-	-	-	-	-	
Harding	countywide	6	48	8.0	n/a	n/a	
Jackson	-	-	-	-	-	-	
Jerauld-Aurora	40	2	6	3.0	0.05	0.15	-63%
Jones	40	2	21	10.5	0.05	0.53	31%
Jones-Stanley	40	1	2	2.0	0.03	0.05	0%
Meade	41	6	52	8.7	0.15	1.27	-13%
Mellette	40	3	12	4.0	0.08	0.30	-8%
Pennington	40	10	36	3.6	0.25	0.90	-64%
Perkins	48	10	72	7.2	0.21	1.50	
Stanley	46	3	12	4.0	0.07	0.26	-60%
Todd (sections)	40	2	18	9.0	0.05	0.45	-14%
Tripp (sections)	-	-	-	-	-	-	
Ziebach	40	3	37	12.3	0.08	0.93	-46%
STATEWIDE	**701**	**92**	**550**	**6.0**	**0.13**	**0.71**	**-28%**

Table 3. Sharp-tailed grouse males per lek, 1994-present.

SHARP-TAILED GROUSE MALES PER LEK, 1994-present

Year	Leks	Males	Males/Lek	Males/Sq. Mile
1994	94	1,074	11.43	1.68
1995	39	514	13.18	1.15
1996	98	1,001	10.21	1.46
1997	58	631	10.88	1.17
1998	87	1,045	12.01	1.38
1999	87	1,095	12.59	1.50
2000	91	1,010	11.10	1.23
2001	68	510	7.50	0.60
2002	82	820	10.00	0.99
2003	92	550	5.98	0.71

Table 4. Greater prairie chicken spring breeding population density.

2003 GREATER PRAIRIE CHICKEN SPRING BREEDING POPULATION DENSITY

County/Route	Square Miles	Grounds Counted	Males Counted	Ave. # Males per Ground	Grounds per Sq. Mile	Males per Sq. Mile	% Change from 2001
Beadle	40	0	0	0.0	0.00	0.00	0%
Buffalo	40	5	38	7.6	0.13	0.95	36%
Charles Mix	36	2	12	6.0	0.06	0.33	-68%
Ft.Pierre NG	40	8	38	4.8	0.20	0.95	0%
Gregory	24	3	8	2.7	0.13	0.33	-47%
Hughes-Hyde	40	4	28	7.0	0.10	0.70	460%
Jerauld-Aurora	40	3	5	1.7	0.08	0.13	0%
Jones	40	2	6	3.0	0.05	0.15	-79%
Jones-Stanley	40	3	7	2.3	0.08	0.18	-13%
Lyman	28	8	90	11.3	0.29	3.21	73%
Stanley	46	3	5	1.7	0.07	0.11	67%
Todd	40	4	15	3.8	0.10	0.38	36%
Tripp	-	-	-	-	-	-	-
TOTALS	**454**	**45**	**252**	**5.6**	**0.10**	**0.56**	**14%**

Table 5. Greater prairie chicken males per lek, 1994-present.

GREATER PRAIRIE CHICKEN MALES PER LEK, 1994-present

Year	Leks	Males	Males/Lek	Males/Sq. Mile
1994	46	293	6.37	0.82
1995	30	206	6.87	0.60
1996	50	385	7.70	0.92
1997	33	216	6.55	0.79
1998	54	466	8.63	1.09
1999	67	568	8.48	1.25
2000	41	339	8.27	0.77
2001	48	306	6.38	0.70
2002	43	238	5.53	0.49
2003	45	252	5.60	0.56

Table 6. Prairie grouse wing data from Ft. Pierre National Grassland, 1992-present.

PRAIRIE GROUSE WING DATA - FT PIERRE NATIONAL GRASSLAND

		Prairie Chickens			Sharp-tails			
Year	Total # Wings	# Wings	% Wings	J:A Ratio	# Wings	% Wings	J:A Ratio	Both J:A Ratio
1992	259	141	54%	2.44	118	46%	2.47	2.46
1993	445	271	61%	2.76	174	39%	3.05	2.90
1994	770	390	51%	2.61	380	49%	2.52	2.56
1995	980	681	69%	2.57	299	31%	2.69	2.63
1996	637	389	61%	2.54	248	39%	2.44	2.50
1997	622	374	60%	2.43	248	40%	2.02	2.26
1998	881	549	62%	2.31	332	38%	2.35	2.32
1999	1,045	610	58%	2.23	435	42%	2.48	2.33
2000	859	524	61%	1.76	335	39%	2.28	1.94
2001	565	371	66%	1.90	194	34%	2.46	2.07
2002	169	103	61%	0.49	66	39%	0.83	0.61
2003	331	214	65%	2.01	117	35%	2.44	2.15

Table 7. 2003 northern bobwhite whistle count survey.

2003 BOBWHITE WHISTLE COUNT SUMMARY

Last Revised: 09/08/2004

County	Route	# Stops	# Stops w/ Quail	% Stops w/ Quail	Total Quail Whistling	# Quail / Stop	Type Data	% Change from Last Year	WCO
Gregory	1	20	1	5	1	0.05	S	-50	Bergquist
Gregory	2	20	2	10	2	0.1	P	-50	Bergquist
Charles Mix	1	20	1	5	1	0.05	P	-50	Flor
Clay	1	20	0	0	0	0	S	-100	Morrow
Clay	3	20	0	0	0	0	S	-200	Morrow
Union	2	20	0	0	0	0	S	0	Morrow
Union	3	20	0	0	0	0	P	0	Morrow
Lincoln	1	20	0	0	0	0	P	-100	Petry
Bon Homme	1	20	0	0	0	0	P	-200	Crownover
Bon Homme	2	20	0	0	0	0	S	0	Crownover
Yankton	1	20	0	0	0	0	S	0	Alban
Yankton	2	20	1	5	2	0.1	S	200	Alban
Tripp	1	20	1	5	1	0.05	P	0	Lindbloom
TOTALS		260	6	2.3%	7	0.03	P=6 S=7	**-53%**	

Table 8. Northern bobwhite whistle count survey summary, 1963-present.

BOBWHITE QUAIL WHISTLE COUNT SURVEY

Year	# Stops	# Stops w/ Quail	% Stops w/ Quail	Total # Birds Heard	Ave. No. Quail per Mile	% Primary Data
1963	235	101	43.0%	205	0.9	74
1964	220	108	49.1%	246	1.1	73
1965	320	118	36.9%	269	0.8	50
1966	240	97	40.4%	263	1.1	83
1967	200	80	40.0%	187	0.9	80
1968	275	156	56.7%	360	1.3	93
1969	370	35	9.5%	58	0.2	56
1970	312	78	25.0%	123	0.4	100
1971	300	95	31.7%	168	0.6	100
1972	300	119	39.7%	215	0.7	100
1973	300	113	37.7%	228	0.8	100
1974	300	127	42.3%	253	0.8	100
1975	300	105	35.0%	194	0.6	67
1976	300	72	24.0%	135	0.5	67
1977	300	89	29.7%	207	0.7	80
1978	300	87	29.0%	167	0.6	100
1979	300	64	21.3%	110	0.4	100
1980	300	101	33.7%	205	0.7	100
1981	260	107	41.2%	213	0.8	92
1982	300	79	26.3%	146	0.5	60
1983	280	80	28.6%	138	0.5	57
1984	240	19	7.9%	23	0.1	100
1985	280	35	12.5%	56	0.2	86
1986	260	36	13.8%	49	0.2	76
1987	260	73	28.1%	118	0.5	100
1988	260	57	21.9%	93	0.4	77
1989	260	67	25.8%	110	0.4	77
1990	260	54	20.8%	93	0.4	85
1991	260	77	29.6%	141	0.5	77
1992	260	75	28.8%	126	0.5	77
1993	260	75	28.8%	102	0.4	69
1994	240	50	20.8%	74	0.3	50
1995	260	61	23.5%	94	0.4	69
1996	260	47	18.1%	74	0.3	69
1997	260	25	9.6%	38	0.1	69
1998	260	10	3.8%	14	0.1	77
1999	260	14	5.4%	23	0.1	77
2000	260	23	8.8%	38	0.1	77
2001	260	10	3.8%	14	0.1	61
2002	260	9	3.5%	15	0.1	61
2003	260	6	2.3%	7	0.0	46

Table 9. Pre-season (August – September 2003) duck banding summary. Banding performed under permit 06897 in McPherson County.

	Male			Female			
Species	**AHY**	**HY**	**LOCAL**	**AHY**	**HY**	**LOCAL**	**Total**
Mallard	194	429	19	115	408	18	1,183
Gadwall	0	6	15	3	5	17	46
American widgeon	1	5	0	1	3	1	11
Green-winged teal	2	4	0	0	0	0	6
Blue-winged teal	33	803	53	66	888	44	1,887
Northern shoveler	0	0	0	0	2	0	2
Northern pintail	96	394	6	149	629	2	1,276
Wood duck	53	3	0	2	1	0	59
Redhead	0	0	0	1	1	1	3
Lesser Scaup	0	0	8	1	0	10	19
Ruddy Duck	1	0	0	0	0	0	1
Total	380	1,644	101	338	1,937	93	4,493

Table 10. Predators removed from waterfowl nest success study areas, 1 April - 1 July 2003.

Area	**Raccoon**	**Skunk**	**Fox**	**Beaver**	**Coyote**	**Mink**	**Ground Squirrel**	**Weasel**	**Woodchuck**	**Badger**	**Total**
Hogsback	5	2	0	0	0	1	7	1	2	0	18
Johnson Slough	3	6	0	0	0	4	0	0	1	0	14
Horseshoe	14	12	0	0	0	5	9	1	3	0	44
Lake Albert Island	1	0	0	0	0	0	0	0	0	0	1
Totals	**23**	**20**	**0**	**0**	**0**	**10**	**16**	**2**	**6**	**0**	**77**

Table 11. South Dakota culvert nesting structures with fiberglass cover partitions, 2003.

			MALLARDS		**CANADA GEESE**	
COUNTY	# CULVERTS	# USED	# NESTS	# SUCCESSFUL	# NESTS	# SUCCESSFUL
Day	0	0	0	0	0	0
Brown	12	3/25%	3	3/100%	12	10/83%
McPherson	0	0	0	0	0	0
Hamlin	0	0	0	0	0	0
Brookings	11	8/73%	12	10/83%	6	6/100%
TOTALS	23	11/48%	15	13/87%	18	16/89%

Table 12. South Dakota mallard baskets with fiberglass cover-tops, 2003.

REGION 3	# BASKETS	# USED/%	# NESTS	# SUCCESSFUL/%
Brookings	29	13/45%	13*	10/77%
Kingsbury	25	9/36%	9	8/89%
TOTALS	54	22/41%	22	18/82%

REGION 4	# BASKETS	# USED/%	# NESTS	# SUCCESSFUL/%
Brown	53	22/42%	22	18/82%
Codington	10	5/50%	5	4/80%
Hamlin	30	21/70%	21	18/86%
Marshall	13	9/69%	9	9/100%
Spink	3	0	0	0
McPherson	5	4/80%	4	4/100%
Edmunds	2	2/100%	2	2/100%
TOTALS	116	63/54%	63	55/87%
GRAND TOTAL	170	85/50%	85	73/86%

Dry conditions influenced nesting activity on some structures this season.

Table 13. South Dakota mallard cylinders, 2003.

COUNTY	# CYLINDERS	# USED/%	# NESTS	# SUCCESSFUL/%
McPherson	9	4/44%	4	4 /100%
Brookings	3	2/67%	2	1/50%
Hamlin	83	61/73%	61	61/100%
Codington	52	21/40%	24	20/83%
Deuel	22	9/41%	10*	10/100%
TOTALS	169	97/57%	101	96/95%

* 2 nests in Deuel County were wood duck.
Dry conditions influenced nesting activity on some structures this season.